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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

BELLO, AGUSTIN

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 09/30/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/747,692

Applicant(s)

PHILLIPS ET AL

Examiner

Agustin Bello

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-22 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-28 of copending Application No. 09/804,316. Although the conflicting claims are not identical, they are not patentably distinct from each other because Both applications recite means for marshalling upstream communications from the plurality of outstations via the transmission of downstream commands, the downstream commands comprising a global command allowing none of the outstations to transmit to the head end for a pre-set period, the global command being followed within the pre-set period by a further command to a selected outstation of the plurality of outstations overriding said global command allowing the selected outstation to transmit upstream to the head end, wherein at least one of the respective communications paths comprises an optical communication path portion and an electrical path portion. Furthermore, both applications recite that the further command to the selected outstation to commence transmission upstream comprises a pause command to the selected outstation to pause transmission upstream

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for a zero time period. Moreover, both applications recite the use of a plurality of wavelengths for upstream and downstream communication, a plurality of wavelengths for downstream communication to different outstations, and the transmission of address information from the headend to the outstations.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 10 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 10 recites the use of a star coupler that is a non-return coupler. It is not clear how upstream optical communication signals sent from the outstations to the headend are received at the headend if the star coupler is a non-return coupler. Claim 21 describes a code but it is not clear how the code is capable of having a memory and a processor.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-16 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (U.S. Patent 5,528,596).

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Regarding claim claims 1, 13, and 20-22, Fisher teaches a communications network comprising a head end (reference numeral 4 in Figure 1) coupled by respective communications paths (path seen in Figure 1) to a plurality of outstations (reference numeral 1-3 in Figure 1), wherein the head end has means for marshalling upstream communications from the plurality of outstations via the transmission of downstream commands (column 1 lines 10-30 and column 3 lines 23-34), the downstream commands comprising a global command allowing none of the outstations to transmit to the head end for a pre-set period (column 1 lines 23-24, column 3 lines 23-34, and column 4 lines 7-9), the global command being followed within the pre-set period (e.g. period where no other outstations communicate) by a further command (e.g. "RECEIVE TRANSMIT MARSHALLING SEQUENCE INSTRUCTION" block in Figure 3) to a selected outstation of the plurality of outstations overriding said global command allowing the selected outstation to transmit upstream to the head end (e.g. "TRANSMIT MARSHALLING SEQUENCE" block in Figure 3), wherein at least one of the respective communications paths comprises an optical communication path portion (inherent in that Fisher teaches a Passive Optical Network). Fisher differs from the claimed invention in that Fisher fails to specifically teach that at least one of the respective communications paths also comprises an electrical path portion. However, Fisher teaches the principles of the invention are equally applicable to electrical paths (column 2 lines 56-58). Furthermore, hybrid fiber coaxial cable communication systems are very well known in the art. One skilled in the art would have been motivated to use a hybrid fiber coaxial cable system in order to reduce the cost associated with extending fiber from the headend to the subscriber. Therefore, it would have been obvious to one skilled in the

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art at the time the invention was made to allow at least one of the respective communications paths to comprise an optical communication path portion and electrical path portion.

Regarding claims 2 and 14, Fisher fails to specifically teach that the further command to the selected outstation to commence transmission upstream comprises a pause command to the selected outstation to pause transmission upstream for a zero time period. However, since Fisher teaches that communication with the selected outstation must take place within a specified time frame, it is clear that the further command to the selected outstation could have comprised of a pause command to the selected outstation to pause transmission upstream for a zero time period being that the headend would most likely want the outstation to begin transmission immediately, therefore constituting a zero time period pause. One skilled in the art would have been motivated to have made the further command a zero time period pause command in order to achieve signal reception at the headend within the specified time frame. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to command the selected outstation to commence transmission upstream with a pause command to the selected outstation to pause transmission upstream for a zero time period.

Regarding claims 3 and 9, Fisher teaches that the head end is coupled to a plurality of outstations, but differs from the claimed invention in that Fisher fails to specifically teach that the connection is made via a star coupler. However, star couplers are very well known in the art. One skilled in the art would have been motivated to use a star coupler to connect to the plurality of outstation being that star couplers provide efficient optical coupling between a plurality of elements. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to use a star coupler to couple the headend to the plurality of outstations.

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Regarding claim 4, Fisher teaches the headend is coupled to at least one of the plurality of outstations via an optical-to-electrical conversion unit (reference numeral 49 in Figure 1).

Regarding claim 5, Fisher inherently teaches that the optical-to-electrical conversation unit comprises a photo-diode (in that receiver 49 in Figure is used to receive optical signals), but differs from the claimed invention in that Fisher fails to specifically teach that the optical-to-electrical conversation unit comprises an amplifier. However, the use of amplifiers in communication systems is very well known in the art. One skilled in the art would have been motivated to use an amplifier in the system of Fisher in order to compensate the received signal for losses incurred during transmission. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to use an amplifier.

Regarding claim 6, Fisher differs from the claimed invention in that Fisher fails to specifically teach that different optical wavelengths are used respectively for upstream and downstream transmission along the optical communication path. However, the use of different optical wavelengths for upstream and downstream transmission along an optical communication path is well known in the art. One skilled in the art would have been motivated to use different optical wavelengths for upstream and downstream transmission along an optical communication path in order to prevent collisions or interference between counter-propagating optical signals. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to use different optical wavelengths for upstream and downstream transmission along an optical communication path.

Regarding claim 7, Fisher differs from the claimed invention in that Fisher fails to specifically teach that downstream transmissions from the head end are carried on a plurality of

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optical wavelengths. However, downstream transmissions from the head end on a plurality of optical wavelengths in passive optical network as that taught by Fisher is well known in the art. One skilled in the art would have been motivated to allow downstream transmissions from the head end to be carried on a plurality of optical wavelengths in order to dedicate greater bandwidth to each outstation provided by the use of dedicated wavelengths to each outstation. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to carry the downstream transmissions from the head end on a plurality of optical wavelengths.

Claims 8, 12, and 15 recite limitations addressed in claims 1 and 2. Therefore, claims 8, 12, and 15 are rejected for the same reasons as stated in the rejection of claims 1 and 2.

Regarding claim 10, Fisher differs from the claimed invention in that Fisher fails to specifically teach that said star coupler is a non-return coupler. However, non-return couplers are well known in the art and readily available. One skilled in the art would have been motivated to use a non-return coupler in the system of Fisher in order to prevent downstream signals from inadvertently counter-propagating toward the head end and interfering with upstream transmission. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to use a non-return coupler in the system of Fisher.

Regarding claim 11, Fisher differs from the claimed invention in that Fisher fails to specifically teach that the headend is coupled to at least one of the plurality of outstations by a splitter. However, the use of splitters in passive optical communication systems is very well known in the art. One skilled in the art would have been motivated to couple to the headend at least one of the plurality of outstations by a splitter in order to efficiently split the signal to a

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plurality of outstations. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to couple the headend to at least one of the plurality of outstations by a splitter.

Regarding claim 16, Fisher inherently teaches that the global command to all of the plurality of outstations to pause transmission is accompanied by a broadcast address in that all of the outstations must be reached in order to cease upstream transmission. In order for all of the outstations to be reached according to the disclosure of Fisher, a broadcast address pointing to all of the outstations would have been required. Therefore, it is clear that the global command sent by the headend of Fisher would have included a broadcast address in order to reach all of the outstations.

7. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (U.S. Patent 5,528,596) in view of Touma (U.S. Patent 6,288,806).

Regarding claim 17, Fisher differs from the claimed invention in that Fisher fails to specifically teach each of the outstations has a respective address, and wherein the further command to the selected outstation to commence transmission is accompanied by the address of the selected outstation. However, outstations with respective addresses are well known in the art, Touma, in the same field of endeavor, teaches it is well known in the art to have a plurality of outstations with respective addresses and to transmit commands to selected outstations with the address of the selected outstation accompanying the command (as seen in Figure 5). One skilled in the art would have been motivated to include the address of the selected outstation along with the command sent to the outstation in order to specifically inform an outstation of the intent to communicate with it based on the address information. Therefore, it would have been

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obvious to one skilled in the art at the time the invention was made to have the command to the selected outstation to commence transmission accompanied by the address of the selected outstation.

Regarding claim 18, the combination of Fisher and Touma fails to specifically teach that the further command to the selected outstation to commence transmission upstream comprises a pause command to the selected outstation to pause transmission upstream for a zero time period. However, since Fisher teaches that communication with the selected outstation must take place within a specified time frame, it is clear that the further command to the selected outstation could have comprised of a pause command to the selected outstation to pause transmission upstream for a zero time period being that the headend would most likely want the outstation to begin transmission immediately, therefore constituting a zero time period pause. One skilled in the art would have been motivated to have made the further command a zero time period pause command in order to achieve signal reception at the headend within the specified time frame. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to command the selected outstation to commence transmission upstream with a pause command to the selected outstation to pause transmission upstream for a zero time period.

Regarding claim 19, the combination of Fisher and Touma differs from the claimed invention in that it fails to specifically teach that different optical wavelengths are used respectively for upstream and downstream transmission along the optical communication path. However, the use of different optical wavelengths for upstream and downstream transmission along an optical communication path is well known in the art. One skilled in the art would have been motivated to use different optical wavelengths for upstream and downstream transmission

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along an optical communication path in order to prevent collisions or interference between counter-propagating optical signals. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to use different optical wavelengths for upstream and downstream transmission along an optical communication path.

Conclusion


8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Van De Voorde, Horton, and Graves teach relevant art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (703) 308-1393. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703) 305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

AB


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